

What's better than one Geostationary Lightning Mapper?

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GLM Science Meeting

9 September 2020

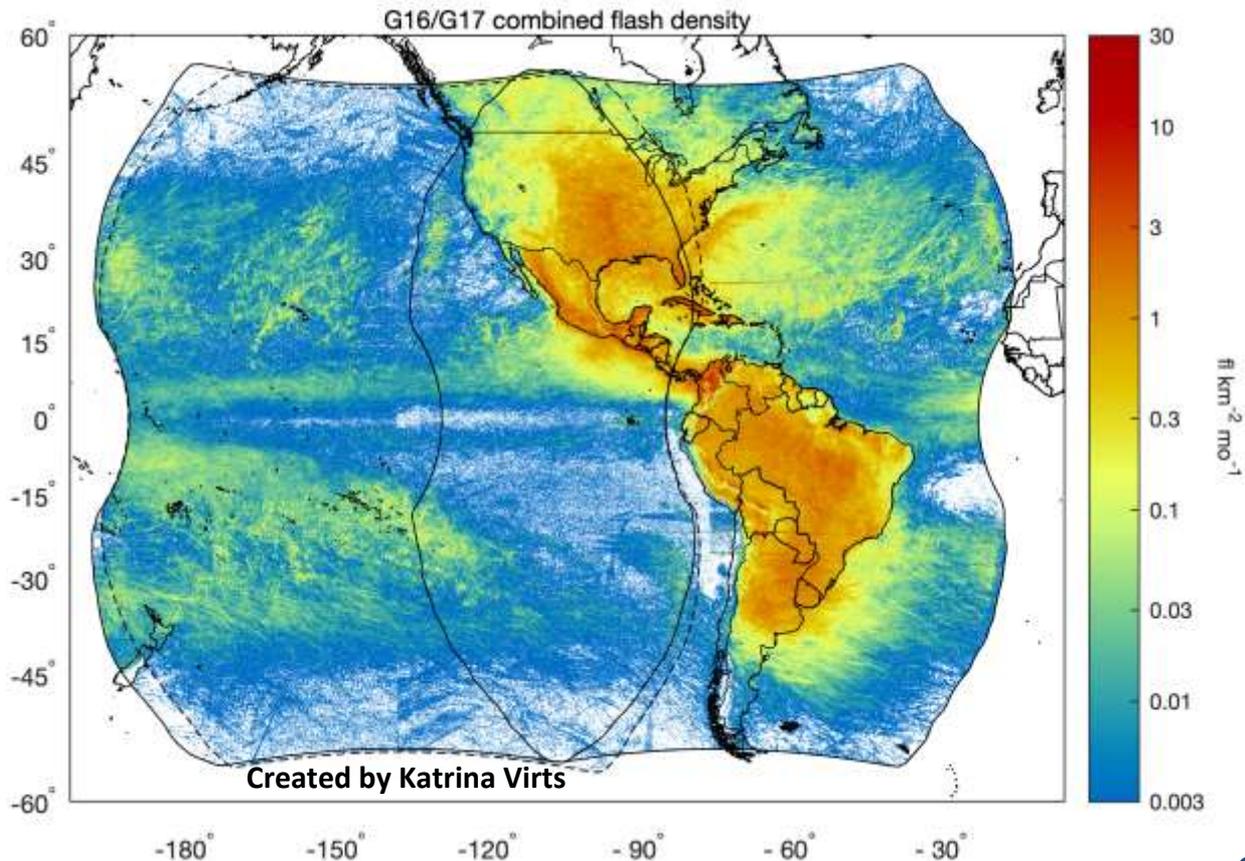
<https://lightning.umd.edu/glm/>

<https://vlab.ncep.noaa.gov/web/geostationary-lightning-mapper/>



Providing Twice the Coverage

- Two GLMs now provide continuous real-time lightning monitoring throughout most of the Western Hemisphere
- GLM capabilities, products, and applications continue to evolve



Providing Two Perspectives

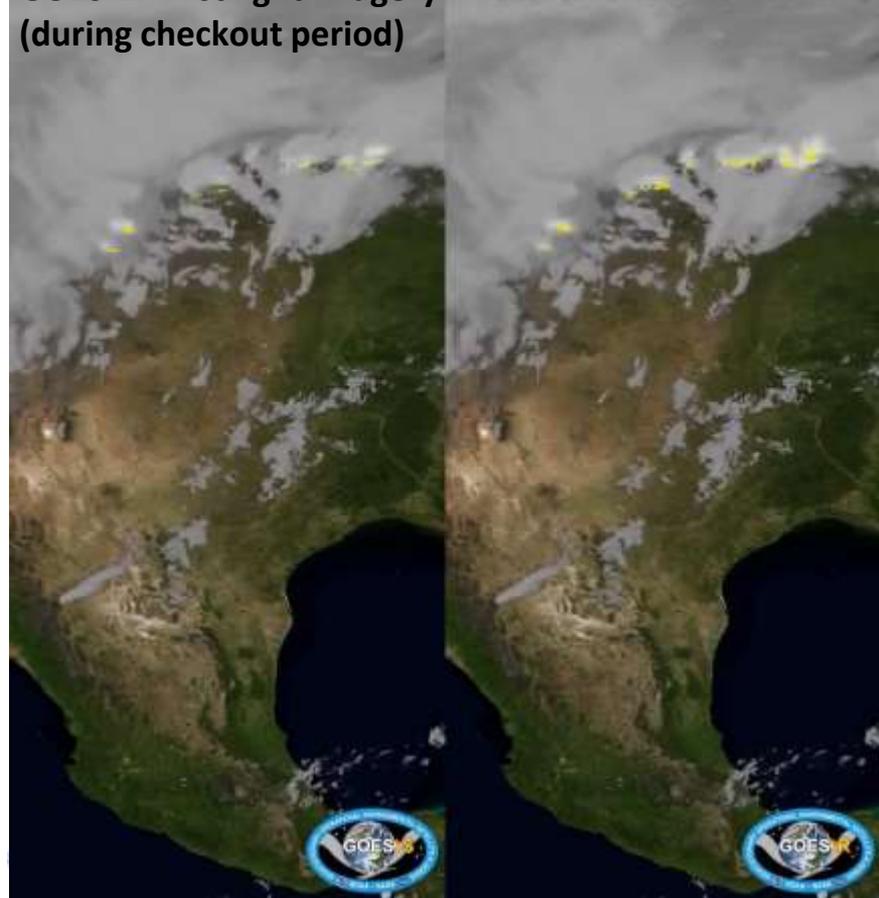
- GOES-East (GE) GLM data have been widely available since reaching provisional maturity on 19 January 2019
- GOES-S launched on 1 March 2018, followed by 6 month checkout at 89.5° W, then a move to 137.2°, becoming GOES-West (GW)



Providing “Twice” the Data

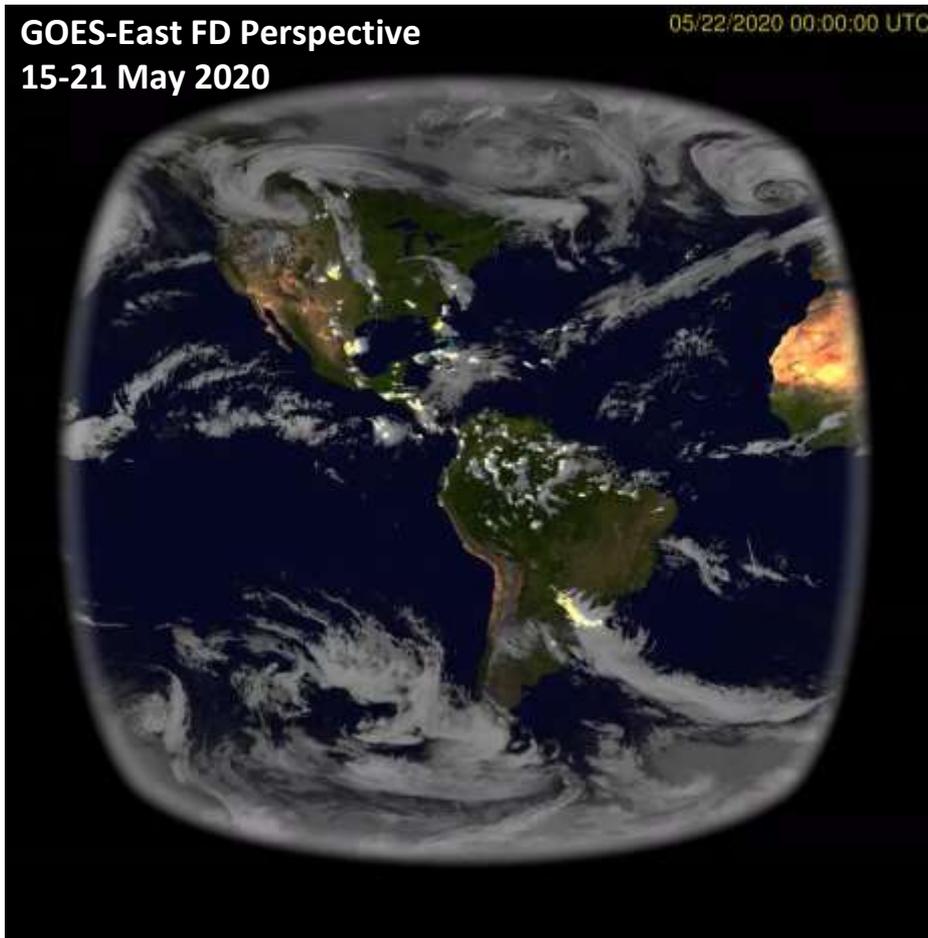
GOES-17 first light imagery
(during checkout period)

04/13/2018 07:57:00 UTC



GOES-East FD Perspective
15-21 May 2020

05/22/2020 00:00:00 UTC



GLM Applications

- **Wide ranging economic and societal benefits, especially when combined with other data**



22 Aug 2020 12:01Z NOAA/NESDIS/STAR GOES-East GLM FED over ABI GEOCOLOR (11:56)

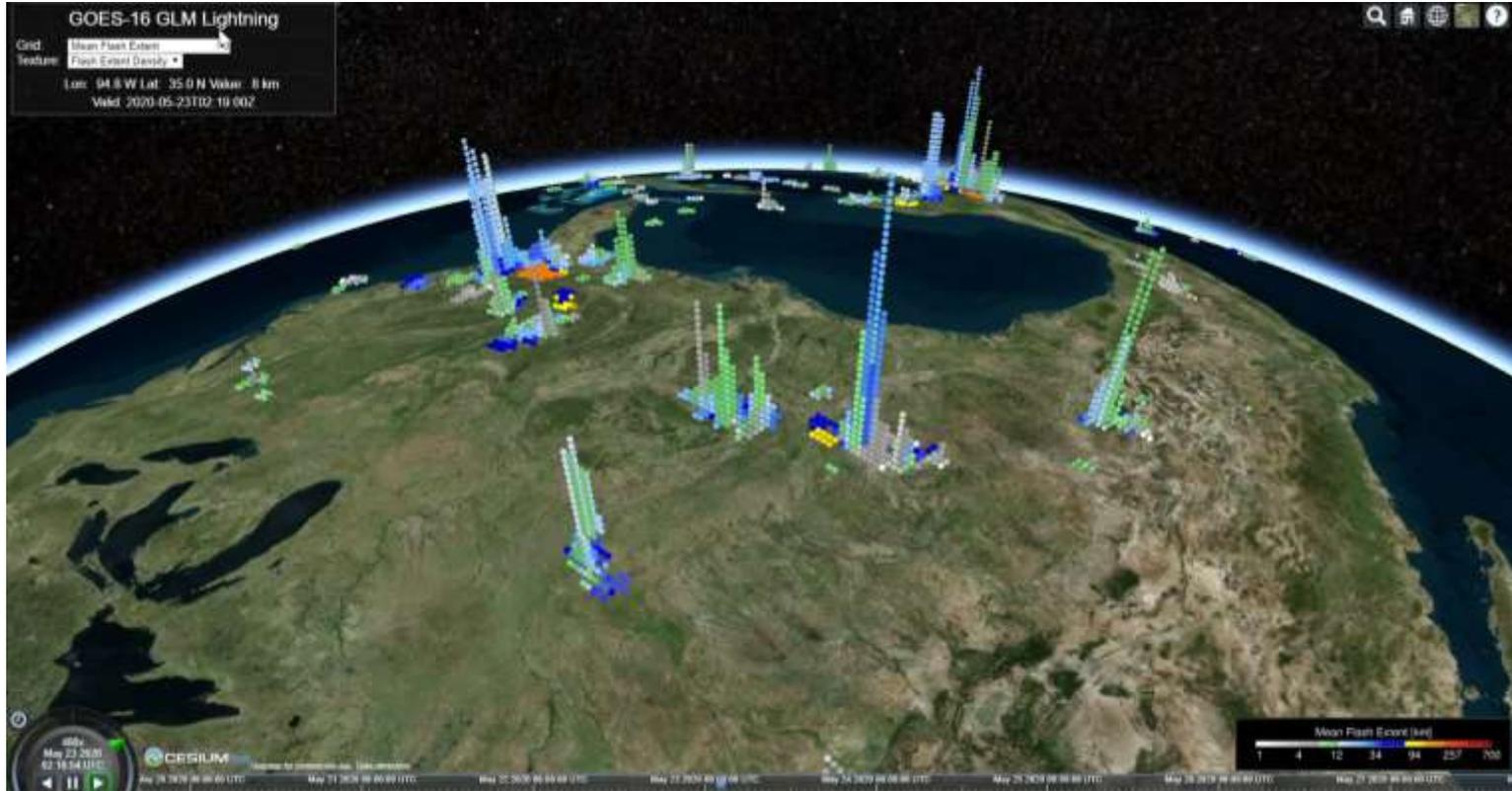
GLM Application

- (1) Severe Local Storms
- (2) Aviation Hazards / Airport Advisories
- (3) TC Structure / Rapid Intensification
- (4) Data Assimilation / Model Initialization
- (5) WSR-88D Outages / Limitations
- (6) Wildfire Initiation
- (7) Precipitation Estimation
- (8) Offshore Convection
- (9) Climate
- (10) Public Safety

GLM Flash Extent Density combined with CIRA ABI GeoColor Imagery

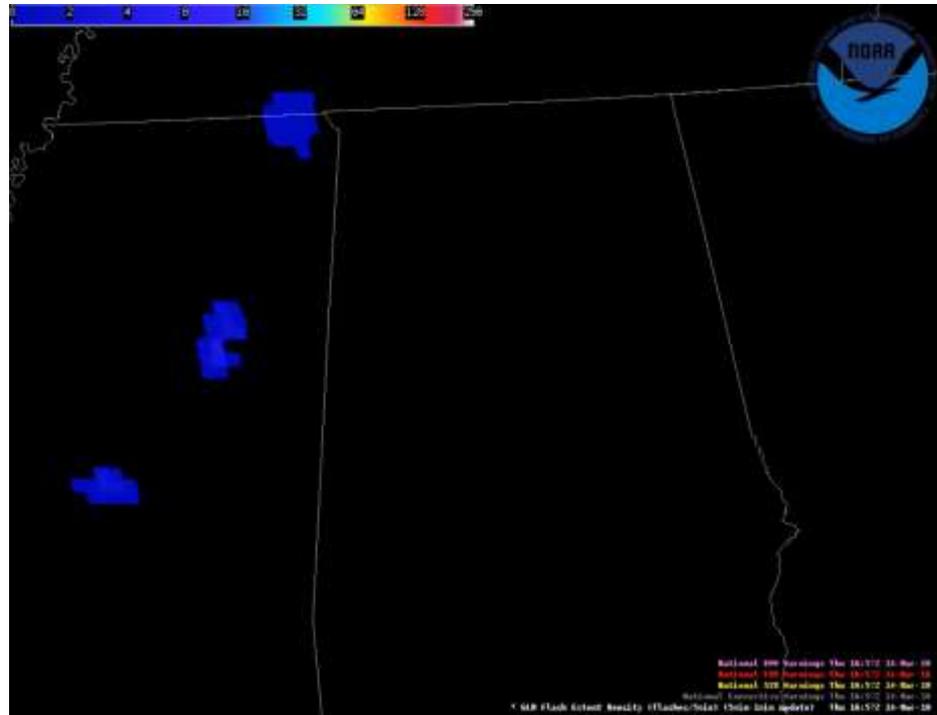
More than Flash Rates

- Michael Peterson's latest - <http://glm.wxarch.com/>

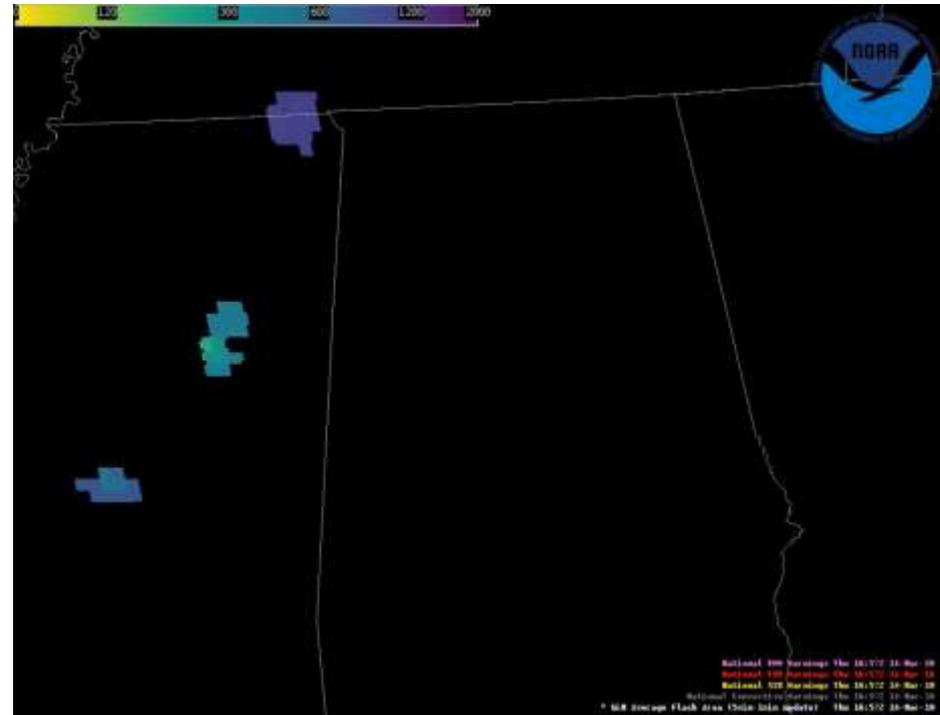


Gridded GLM Products

- Flash Extent Density



- Average Flash Area

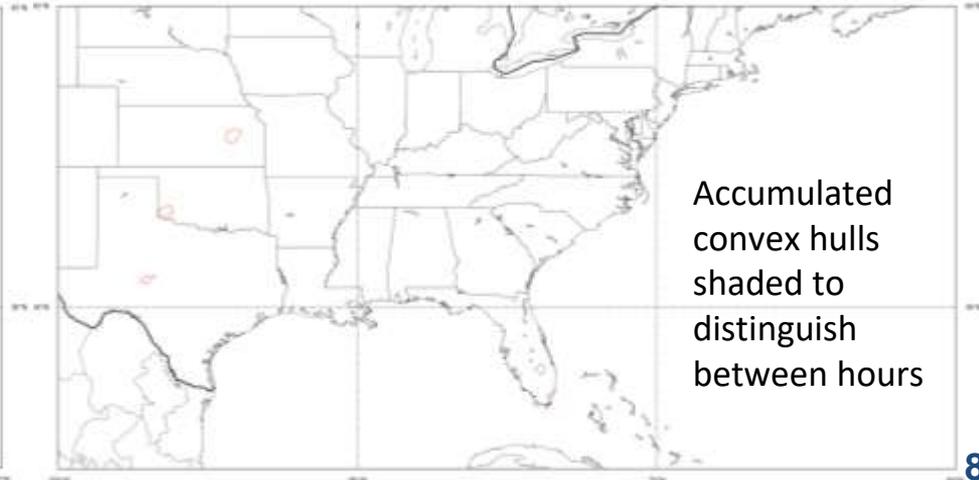
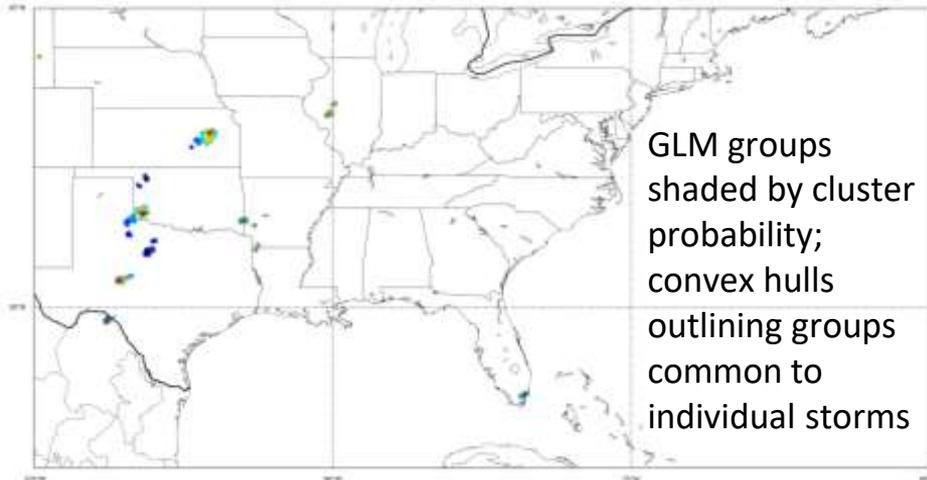
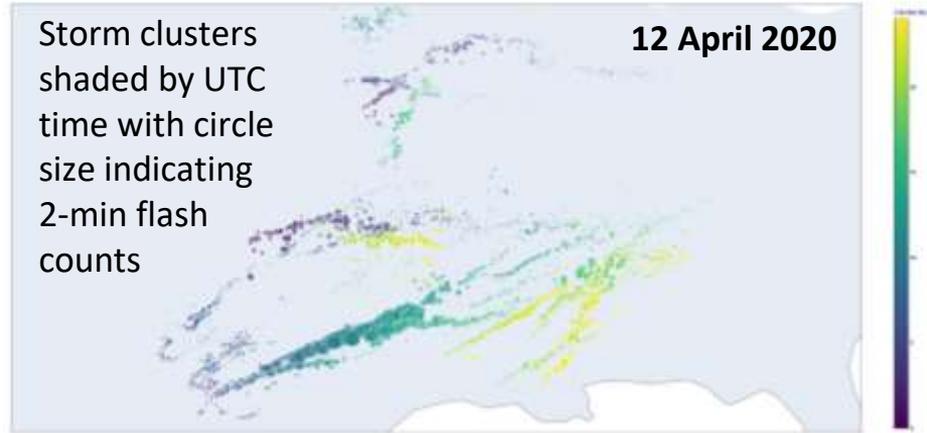


* Replaced by Minimum Flash Area



Exploring GLM Storms

- **Idea: Advantageous to define storm features using only GLM observations**
- **Investigating clustering methods, initially Hierarchical DBSCAN**



Two GLM Links

- <https://lightning.umd.edu/glm/> aims to promote proper use and interpretation - many useful links to most of the imagery shown here
- COD Meteorology page now offers GLM FED as an overlay, visit <https://weather.cod.edu/satrad/>, select Product Overlays, then GLM FED under GOES Derived

